

1 stepped pressure equilibrium code : pq02aa

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1.1 outline

1. Constructs quadratic-flux minimizing surfaces.
2. The routine `pq02aa` is called from `spec`, and only if `Nghd.gt.0`. The `qfmin` structure array is defined in `global` and allocated (and assigned default values) in `al0aa`.
3. If the selected rational is within the rotational transform range of the given annulus, the flag `qfms(lvol,nc)%i=1` is set. This will be used in `pp00aa` when constructing the Poincaré plot. If the selected rational is not within the rotational transform range of the given annulus, control will cycle.
4. The `qfmin`-surface is constructed iteratively (at max. `Mpqits`) in order to obtain periodic pseudo curves equally spaced in the straight-field line angle.
5. Each periodic pseudo orbit is located by integrating the pseudo-field the full periodicity and using an iterative method.
6. The tangent mapping is constructed by finite-differences (but a better approach could construct the tangent map by integrating the differentiated equations).
7. The periodic pseudo orbits are presently only saved on one toroidal plane – this needs to be developed if the `qmfin` surface is to be Fourier decomposed.
8. Periodic pseudo orbits are located to a tolerance of `qq*odeto1`, or the iterations are terminated if `its.gt.Mpqits`.
9. The repetitive construction of `qfmin` surfaces to obtain periodic pseudo curves equally spaced in the straight-field-line angle is terminated when a measure of the straight field line angle error is less than 10^{-3} .
10. The periodic pseudo curves are saved to files, `.ext.qfms:xxxx` where `xxxx` is an annulus label.

pq02aa.h last modified on 2012-05-15 ;
